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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2014-0493; Directorate Identifier 2013-SW-019-AD]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Sikorsky Aircraft Corporation (Sikorsky) Model**

#### **Helicopters**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for certain Sikorsky Model S-92A helicopters. This proposed AD would require installing a main gearbox (MGB) failed pump sensor and vacuum switch wiring, installing an MGB oil auto bypass system, activating Aircraft Management System (AMS) 7.1 software to show a new visual warning, and installing updated enhanced ground proximity warning system (EGPWS) software that includes an aural annunciation of a complete oil pressure loss condition. This proposed AD would also require inserting a Rotorcraft Flight Manual (RFM) Supplement into the applicable RFM. This proposed AD is prompted by investigation results of in-service oil leakage incidents. The proposed actions are intended to alert and prevent MGB oil loss, which could lead to failure of the MGB and subsequent loss of control of the helicopter.

**DATES:** We must receive comments on this proposed AD by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** You may send comments by any of the following methods:

- Federal eRulemaking Docket: Go to <http://www.regulations.gov>. Follow the online instructions for sending your comments electronically.

- Fax: 202-493-2251.

- Mail: Send comments to the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590-0001.

- Hand Delivery: Deliver to the “Mail” address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the Docket Operations Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the economic evaluation, any comments received, and other information. The street address for the Docket Operations Office (telephone 800-647-5527) is in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

For the Sikorsky service information identified in this proposed AD, contact Sikorsky Aircraft Corporation, Customer Service Engineering, 124 Quarry Road, Trumbull, CT 06611; telephone 1-800-Winged-S or 203-416-4299; email [sikorskywcs@sikorsky.com](mailto:sikorskywcs@sikorsky.com); or at <http://www.sikorsky.com>. For the Honeywell service information identified in this proposed AD, contact Honeywell International, Inc., at 15001 N.E. 36 Street, Redmond, WA 98052-5316, telephone (800) 601-3099; email [www.myaerospace.com](http://www.myaerospace.com). You may review the referenced service information at the FAA,

Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663,  
Fort Worth, Texas 76137.

**FOR FURTHER INFORMATION CONTACT:** Michael Schwetz, Aviation Safety Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, FAA, 12 New England Executive Park, Burlington, Massachusetts 01803; telephone (781) 238-7761; email [michael.schwetz@faa.gov](mailto:michael.schwetz@faa.gov).

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

We invite you to participate in this rulemaking by submitting written comments, data, or views. We also invite comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

We will file in the docket all comments that we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

## **Discussion**

We propose to adopt a new AD for Sikorsky Model S-92A helicopters. This proposed AD would require, depending on the helicopter's serial number, installing an MGB failed pump sensor and vacuum switch wiring, installing an MGB oil auto bypass system, activating AMS 7.1 software to show a new MGB "OIL OUT" visual warning, updating the EGPWS software to include an aural annunciation of a complete oil pressure loss condition, and inserting an RFM Supplement into the applicable RFM.

This proposed AD is prompted by one accident and one in-service oil leakage incident where it was discovered during subsequent investigations that the pilot failed to activate the bypass valve within 5 seconds of the oil pressure dropping below 35 psi, as required by the RFM. Both accident and incident investigations found that the pilot activated the bypass valve well beyond the 5 seconds.

The manual operation of the bypass valve within 5 seconds of the oil pressure dropping below 35 psi has proven not to be a realistic expectation. The MGB failed pump sensor and vacuum switch wiring is a system that will detect an oil pressure drop in the input module and alert the pilot if the low oil pressure is the result of a failed oil pump. The MGB oil auto bypass system eliminates the need for the pilot to manually switch the bypass valve when the oil pressure drops below 35 psi. The AMS software upgrade is to automate the bypass valve and to alert the pilot that the low oil pressure may be the result of a failed oil pump. Knowing the low oil pressure is the result of a failed oil pump and not due to oil leakage will allow the pilot to switch the bypass valve out of bypass to cool the oil. When the oil is not cooled, the hot oil may cause the input module seals to fail allowing an excessive amount of oil to leak resulting in failure of the MGB. There have

been several incidents of a pump failure where the oil had the potential to reach a high enough temperature to damage the seals. The EGPWS software change provides a new aural warning of a complete oil pressure loss.

### **FAA's Determination**

We are proposing this AD because we evaluated all known relevant information and determined that an unsafe condition exists and is likely to exist or develop on other helicopters of this same type design.

### **Related Service Information**

Sikorsky has issued the following service information:

- Alert Service Bulletin (ASB) No. 92-63-024C, Revision C, dated October 7, 2011, for certain serial-numbered helicopters specifies installing a main module input gear box switch assembly and modifying the MGB vacuum switch wiring. Before making the modification, the ASB states an AMS 4.1 or greater version must first be installed and the following Customer Service Notices (CSN) completed: CSN 92-068C, Revision C, dated March 27, 2012, and CSN 92-069A, Revision A, dated November 10, 2011.
- ASB 92-63-027, Basic Issue, dated January 21, 2013, for certain serial-numbered helicopters specifies installing an MGB oil pressure automatic bypass system, activating an MGB "OIL OUT" visual warning in the AMS 7.1 software, and performing systems operational checkout procedures. Before or when installing the MGB oil pressure auto bypass system, the ASB states the following must be complied with: CSN 92-089, Basic Issue, dated January 10, 2013; ASB 92-34-002, Basic Issue, dated January 21, 2013; and ASB 92-63-024C, Revision C, dated October 7, 2011.

- ASB 92-34-002, Basic Issue, dated January 21, 2013, for certain serial-numbered helicopters with certain part-numbered EGPWS installed, specifies installing EGPWS updated software version 030, which adds an MGB “OIL OUT” aural warning, in accordance with Honeywell International, Inc., Service Bulletin 965-1595-34-23, Revision 0, dated March 13, 2012. Before or during installation of the updated software, the ASB states the following must be complied with: ASB 92-63-027, Basic Issue, dated January 21, 2013, and CSN 92-089, Basic Issue, dated January 10, 2013.

### **Proposed AD Requirements**

The proposed AD would require, within 500 hours time-in-service (TIS):

- Inserting a copy of the Sikorsky S-92A RFM Supplement No. 45, Part I, dated July 30, 2012, into the RFM.
- For certain serial-numbered helicopters, installing an MGB failed pump sensor and MGB vacuum switch wiring.
- For certain other serial-numbered helicopters, installing an MGB auto bypass system, activating AMS 7.1 software, and installing EGPWS software version 030.

### **Differences between this Proposed AD and the Service Information**

This AD proposes compliance within 500 hours TIS, and the service information specifies certain dates and calendar times.

### **Costs of Compliance**

We estimate that this proposed AD would affect 44 helicopters of U.S. Registry.

We estimate that operators may incur the following costs in order to comply with this AD. Labor costs are estimated at \$85 per hour. The work hours and required parts costs are estimated as follows:

- .5 work hour to insert the RFM Supplement into the RFM.
- 8 work hours plus \$2,200 for required parts to install an MGB failed pump sensor;
- 4 work hours plus \$250 for required parts to install MGB vacuum switch wiring;
- 71.7 work hours plus \$4,100 for required parts to install an MGB oil pressure auto bypass system;
- 1 work hour to activate AMS 7.1; and
- 1 work hour plus \$500 for required parts to install EGPWS software.

The total cost of compliance for all actions would be about \$14,377 per helicopter and \$632,588 for the U.S. fleet.

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. “Subtitle VII: Aviation Programs,” describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in “Subtitle VII, Part A, Subpart III, Section 44701: General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This proposed regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed, I certify this proposed regulation:

1. Is not a “significant regulatory action” under Executive Order 12866;
2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction; and
4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared an economic evaluation of the estimated costs to comply with this proposed AD and placed it in the AD docket.

## **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by Reference, Safety.

## **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:



Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**SIKORSKY AIRCRAFT CORPORATION:** Docket No. FAA-2014-0493; Directorate Identifier 2013-SW-019-AD.

**(a) Applicability**

This AD applies to Model S-92A helicopters, serial number (S/N) 920006 through 920179, certificated in any category.

**(b) Unsafe Condition**

This AD defines the unsafe condition as main gearbox (MGB) oil loss, which could lead to failure of the MGB and subsequent loss of control of the helicopter.

**(c) Comments Due Date**

We must receive comments by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register]**.

**(d) Compliance**

You are responsible for performing each action required by this AD within the specified compliance time unless it has already been accomplished prior to that time.

**(e) Required Actions**

Within 500 hours time-in-service:

(1) Insert a copy of the Sikorsky S-92A Rotorcraft Flight Manual (RFM) Supplement No. 45, Part I, dated July 30, 2012, into the RFM.

(2) For helicopters with S/N 920006 through 920132:

- (i) Install an MGB failed pump sensor, Modification Kit Part Number (P/N) 92070-35007-011.
- (ii) Install MGB vacuum switch wiring, Modification Kit P/N 92070-55039-013.
- (3) For helicopters with S/N 920006 through 920179:
  - (i) Install an MGB auto bypass system, Modification Kit P/N 92070-55061-011.
  - (ii) Activate Aircraft Management System 7.1 software to show a new MGB “OIL OUT” visual warning.
  - (iii) Install enhanced ground proximity warning system software version 030.

**(f) Special Flight Permit**

Special flight permits are prohibited.

**(g) Alternative Methods of Compliance (AMOC)**

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to: Michael Schwetz, Aviation Safety Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, FAA, 12 New England Executive Park, Burlington, Massachusetts 01803; telephone (781) 238-7761; email [michael.schwetz@faa.gov](mailto:michael.schwetz@faa.gov).

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office before operating any aircraft complying with this AD through an AMOC.

**(h) Additional Information**

Sikorsky Alert Service Bulletin (ASB) No. 92-63-024C, Revision C, dated October 7, 2011; Sikorsky ASBs 92-63-027 and 92-34-002, both Basic Issue and both dated January 21, 2013; Sikorsky Customer Service Notice (CSN) 92-068C, Revision C, dated March 27, 2012; CSN 92-069A, Revision A, dated November 10, 2011; CSN 92-089, Basic Issue, dated January 10, 2013; and Honeywell International, Inc., Service Bulletin 965-1595-34-23, Revision 0, dated March 13, 2012, which are not incorporated by reference, contain additional information about the subject of this AD. For service information identified in this AD, contact Sikorsky Aircraft Corporation, Customer Service Engineering, 124 Quarry Road, Trumbull, CT 06611; telephone 1-800-Winged-S or 203-416-4299; email [sikorskywcs@sikorsky.com](mailto:sikorskywcs@sikorsky.com); or at <http://www.sikorsky.com> and Honeywell International, Inc., at 15001 N.E. 36 Street, Redmond, WA 98052-5316, telephone (800) 601-3099; or at [www.myaerospace.com](http://www.myaerospace.com). You may review a copy of this service information at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

**(i) Subject**

Joint Aircraft Service Component (JASC) Code: 6320 Main Rotor Gearbox.

Issued in Fort Worth, Texas, on July 17, 2014.

**S. Frances Cox,**  
*Acting Directorate Manager, Rotorcraft Directorate,*  
*Aircraft Certification Service.*

**BILLING CODE 4910-13-P**

**[FR Doc. 2014-17334 Filed 07/22/2014 at 8:45 am; Publication Date: 07/23/2014]**